

The New Face of Professional Resource Management

*“Employees of the
National Park Service
are our best asset.”*

—Fran Mainella
NPS Director

Natural resource management in the national parks has a human face and it has changed. For more than a decade, NPS managers have recognized the increasing complexity of management issues affecting parks and the corresponding level of human effort and expertise necessary to preserve parks for the future. The response has been a gradual but consistent increase in the number and professional training of resource managers in the workforce. Since 1999 the Natural Resource Challenge has highlighted the need for professional positions to deal with a wide variety of technical issues related to water and air resources across the park system. With few parks able to hire their own specialists, new positions are being strategically located to serve multiple parks where the needs are greatest. Five of these new air and water resources staff are profiled in this chapter, their accomplishments related chiefly to technical assistance in their geographic focus areas, and the identification of research needs. The Challenge has also pointed to the need for highly trained individuals to design effective resource monitoring strategies, a critical function for the future of the parks. These doctorate- and master's-level natural resource experts, four of whom are profiled here, contribute valuable energy, intelligence, and experience to the fledgling monitoring networks. Altogether these staff are part of a new critical mass of expert natural resource managers in the National Park Service. They are extending the bounds of what we in the National Park Service can accomplish, what we must accomplish, to ensure the continuing enjoyment of park natural resources by the American people.

Brenda Moraska Lafrancois, Ph.D.

Great Lakes Area Aquatic Ecologist



Brenda Moraska Lafrancois had just completed her dissertation work in ecology and fishery and wildlife biology when she joined the National Park Service as an aquatic ecologist in September 2002. Her position, funded under the Natural Resource Challenge, was developed to provide aquatics expertise for the

many water-rich parks of the Great Lakes area. Over the past year, meeting this objective has taken a variety of forms. She has analyzed long-term water quality data for St. Croix National Scenic Riverway (Wisconsin and Minnesota), helped prepare a water resource management plan for Isle Royale National Park (Michigan), and provided assistance and oversight for research projects at Isle Royale, Sleeping Bear Dunes National Lakeshore (Michigan), and Voyageurs National Park (Minnesota). With Jay Glase, a fisheries biologist hired simultaneously for the same set of parks, Brenda is preparing reports that synthesize aquatic research across Great Lakes parks and working

with the Great Lakes Inventory and Monitoring Network to make the reports useful to all the network parks.

As a child in Wisconsin, Brenda spent a lot of time on a river that became increasingly polluted as she was growing up, sparking her interest in water quality. In the summers, on family vacations in the West and Southwest, she always enjoyed visiting national parks. When this position was created—aquatic ecologist in the national parks in her native Midwest—it seemed like the perfect fit for her.

Brenda appreciates the broad perspective her position offers. “I have enjoyed working in this regional context and getting to know a diverse group of aquatic resources and people. Best of all, I like applying my skills to interesting aquatic resource questions and contributing to scientific understanding at a terrific set of parks.” ■

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NPS staff since September 2002

St. Croix Watershed Research Station, NPS Water Resources Division;
Marine on St. Croix, Minnesota

PROFESSIONAL PROFILES

water resources

James M. Long, Ph.D.

Fishery Biologist



The Southeast Region is an area with some of the highest biological diversity of aquatic organisms, particularly fish. Therefore, the National Park Service, through the Natural Resource Challenge, created a regional fisheries biologist position. The first specialist to fill that position is Jim Long, and with 64 parks in this region situated in freshwater and marine environments, there is never a shortage of fish-related issues to keep him busy. In 2003, Jim was working on shoal bass restoration at Chattahoochee River National

Recreation Area (Georgia), assisting Biscayne National Park (Florida) with their developing fisheries management plan, and working with staff and partners of Congaree Swamp National Monument (South Carolina) toward understanding the role of flooding on fish communities and the impacts from reduced flooding due to the operation of an upstream hydroelectric dam.

Jim received his doctorate in wildlife and fisheries ecology from Oklahoma State University in 2000, working on community ecology of black bass in reservoirs. Afterwards, he worked as a research fisheries biologist with the South Carolina Department

of Natural Resources examining interrelationships between fish communities and physical habitat in wetlands of the Cooper River. Jim brings training and interests in fisheries management, population and community ecology, and statistical methodology to help manage aquatic biodiversity in the parks of the Southeast Region.

With the skills of scientists like Jim Long, we are increasing our understanding and ability to manage these important aquatic environments. “I look forward to meeting these challenges,” Jim says, “addressing known fisheries-related issues, and bringing my expertise to the parks to identify unknown issues.” ■

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NPS staff since August 2002

Southeast Region, NPS Water Resources Division;
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Alan C. Ellsworth, M.S.

Northeast Regional Hydrologist



As the new Northeast Region hydrologist, Alan Ellsworth is the principal point of contact for water-related issues, serving as liaison for the Washington Office, Water Resources Division. In this capacity he provides support for study planning and design, reviews resource impact plans, assists with funding proposals, and provides inter- and intra-agency contact assistance.

What Alan likes about his job is that “it allows me to be involved with a diverse array of water resource issues across a large region that was home to me until I was 25 years old. I interact with natural resource professionals from a variety of backgrounds and have been able to expand my knowledge and interests through the projects and support the National Park Service has provided me.”

Indeed, he is currently involved in a wide variety of water resource issues in geographically and hydrologically diverse settings. Locally, he has worked with Delaware Water Gap National Recreation Area and Upper Delaware Scenic and Recreational River (Pennsylvania, New York, and New Jersey) on such issues as habitat flow needs (with a multiagency project), special protection water quality regulations, groundwater monitoring, and Federal Energy Regulatory Commission relicensing.

Across the region he has been involved in a natural resource review for the general management plan of George Washington Birthplace National Monument (Virginia), overseen a stream sediment sampling project at Valley Forge National Historical Park (Pennsylvania), conducted field surveys and project evaluation for wetlands restoration at Minuteman National Historical Park (Massachusetts), and consulted with other agencies to establish stream impairment sampling protocols for Shenandoah National Park (Virginia).

Before accepting this appointment he worked in the western states for eight years at the USDA Forest Service Rocky Mountain Research Station as a physical scientist studying the effects of atmospheric deposition on alpine and subalpine watersheds. Returning to the Northeast for his new position, he says that although the larger parks of this region are spectacular, he has been most impressed by the natural resource protection afforded by small cultural parks in this largely urbanized corridor. ■

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NPS staff since October 2002

NPS Water Resources Division; Delaware Water Gap National Recreation Area, Pennsylvania

PROFESSIONAL PROFILES

water resources



Buford Dam marks the upstream boundary of Chattahoochee River National Recreation Area, Georgia. The dam discharges water from the bottom of the reservoir, depressing water temperature in the Chattahoochee River, and has resulted in the elimination of many native fish species from the park. Fishery Biologist Jim Long takes part in water quantity negotiations among three states that will dictate new flow regimes from the dam. He ensures that park fishery issues are adequately considered during the negotiations. Hydrologist Alan Ellsworth and Aquatic Ecologist Brenda Moraska Lafrancois are also involved in lake level and river regulation issues in national parks of the Northeast and Great Lakes, respectively. Their efforts are focused on monitoring the ecological effects of regulated river flows and lake levels on park resources and enhancing aquatic habitat.

Elizabeth Waddell

Air Resources Specialist



Elizabeth Waddell brings 25 years of experience in the atmospheric science community to her newly created position in the NPS Air Resources Division. Her previous work with the Environmental Protection Agency (EPA) and the National Oceanic and Atmospheric Administration and her many contacts with state air quality agencies have already enabled

her, during her first year on the job, to build partnerships and to enhance the role of the National Park Service with state and federal regulators. As a result, the National Park Service now has a stronger presence on a number of technical and policy forums in the Northwest, including the Northwest International Air Quality Environmental Science and Technology Center and EPA Region 10's Office of Air Quality Leadership Team. Partnering has already benefited one park in particular: Elizabeth was able to obtain substantial funding to provide ultra-low-sulfur diesel fuel and to retrofit diesel equipment at Mount Rainier National Park (Washington) with catalysts or filters to reduce air pollution.

Elizabeth has long been interested in working with air resources in the National Park Service. As she tells it, "Over a decade ago, I met the air resources coordinator for the Pacific Northwest Region of the Park Service, Shirley Clark. At the time, I was working for EPA providing support for air toxics research and regulatory development by the state air agencies in the Northwest. As we talked, I learned about Shirley's role in evaluating and promoting research into air quality impacts on the parks, as well as her regulatory role under the Clean Air Act as a federal land manager. I concluded that she had the best job in the world. I am amazed and thrilled that, through funding from the Natural Resource Challenge, I now have that job! I am looking forward to continuing to build partnerships that will enhance our ability to evaluate and address air quality impacts on our national parks." ■

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NPS staff since December 2002

Pacific West Region; Seattle, Washington

PROFESSIONAL PROFILES air resources

Michael George, M.S.

Texas and Border Region Air Quality Coordinator



Having worked in both the public and private sectors, Michael George brings 13 years of experience in air quality to the National Park Service. From his office in Austin, he now applies his expertise on behalf of 15 national parks in Texas and along the Mexican border. Before joining the National Park Service in 2003, Michael worked in the Air Quality

Division at the Arizona Department of Environmental Quality. In that position he managed technical programs that performed air quality monitoring and modeling and developed inventories of pollutant emissions.

His current air resources responsibilities encompass a broad range of technical and policy issues that make use of that experience. An example is his work with the Central States Regional Air Partnership, an organization of states and tribes that covers the central United States, stretching from Canada to Mexico, and assists its members in meeting the visibility requirements of the Clean Air Act. Michael's work with this organization helps to ensure that air quality planning in the region appropriately protects Class I area parks (the larger parks that are given additional air quality

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protection by the Clean Air Act). His participation in local air quality planning and technical activities is providing the parks with a more direct voice than has been the case in the past.

Michael has participated in a number of projects through the years in which the National Park Service has been a partner, and says, "I always enjoyed working with the Park Service people, so I looked forward to doing that full-time in this new position. I couldn't ask for a better opportunity." ■

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NPS staff since March 2003

Center for Energy and Environmental Resources, University of Texas; Austin, Texas

Bruce Bingham, M.S.

Intermountain Regional Inventory and Monitoring Coordinator



Bruce Bingham comes to his new position from the USDA Forest Service where he was assistant program manager for the Interagency Regional Monitoring Program, associated with the Northwest Forest Plan. Working with eight federal agencies, Bruce coordinated several activities for the program, which monitors the northern spotted owl, the marbled murrelet, the amount and distribution of old-growth forests, watershed condition, and other indicators of the health of the Pacific Northwest forests. This experience prepared him for his current job of developing monitoring programs for the National Park Service.

Earlier in his career, when Bruce did research as a vegetation ecologist for the USDA Forest Service, Pacific Southwest Research Station, he worked under Dr. Barry Noon, who was involved in conceptual modeling for the NPS prototype monitoring programs. Bruce has also worked for The Nature Conservancy managing three preserves. All of his previous work has been in the Pacific

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Northwest, but he expects that the move to the new region will not be a problem. "The Intermountain Region is huge and contains lots of diversity, like the Pacific Northwest. Although many of the ecosystems are different from those of the Northwest, learning to understand systems and monitoring them are similar challenges in every region."

Bruce had just taken his new post at the time of this writing. He says he is looking forward to his role as I&M coordinator. "I'm really excited to be working here because of my strong belief in the mission of the National Park Service." ■

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NPS staff since October 2003
Denver, Colorado

PROFESSIONAL PROFILES

resource monitoring

John E. Gross, Ph.D.

Ecologist



Selecting ecological vital signs, the species and other factors that reflect the integrity of an ecosystem, is a formidable challenge. Meeting this challenge requires scientists with the broad expertise to understand whole systems and the interactions of their parts. John Gross has this expertise. Hired through the Natural Resource Challenge as an ecologist, his job is to provide scientific support to Inventory and Monitoring Networks throughout the National Park Service as they develop their monitoring programs, and to coordinate scientific activities across the networks. One of his tasks is to see the big picture: how the larger landscapes in which parks are embedded influence their resources, and how the many parts of the system are connected. Monitoring networks need this information to identify candidate vital signs that will effectively support decisions on management of park resources.

John has a strong background in quantitative ecology and systems modeling, which has sharpened his ability to think holistically about ecosystems—considering all the parts and how they fit together. "That's what excites me, and that's what the Inventory and Monitoring Program is all about," he says.

His early research focused on behavior and ecology of large mammals, including studies of native goats (ibex) in the deserts of Israel and Pakistan and in the Swiss Alps. In the United States, he has studied ecosystem ecology in western national parks and elsewhere. Before coming to the National Park Service, John was a landscape ecologist in Australia studying tropical savannas in the extensive outback of northern Australia and the sustainability of small, yet complex, household farming systems in Indonesia. In those studies, he used a highly integrative systems approach to understand how environmental and social factors influence ecosystem sustainability. When it comes to learning about ecosystems and human influences on them, John says, "I'm like a kid in a candy store. It all looks good to me. I'm interested in all sorts of stuff." ■

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NPS staff since June 2003
Inventory and Monitoring Program, Natural Resource Information Division;
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Greg Shriver, Ph.D.

Northeast Temperate Monitoring Network, Inventory and Monitoring Coordinator



Greg Shriver's success in partnering for grassland bird monitoring data was a big factor in his selection as the Northeast Temperate Network inventory and monitoring coordinator, says regional I&M coordinator Beth Johnson. Greg has a great deal of experience in both partnering and monitoring. For his doctorate in conservation biology, he sur-

veyed 235 salt marshes from eastern Maine to southern Connecticut. During that study and his work for the Massachusetts Audubon Society, Greg surveyed more than 1,300 sites for grassland and saltmarsh breeding birds. As a postdoctoral research fellow at the National Estuarine Research Reserve in Wells, Maine, he worked to implement a Gulf of Maine-wide saltmarsh restoration monitoring program designed to determine the effects of restoration projects on the physical environment and the flora and fauna. These monitoring

experiences demonstrated to him the importance of working with other agencies and of integrating regional survey protocols.

Through the Natural Resource Challenge's long-term support, Greg says, the National Park Service can do monitoring long enough to reveal trends that provide real insight into what's happening in the environment. "This is a big job and we need all the help we can get from other agencies that are interested in this information. We need to build on existing programs and design monitoring protocols that are compatible with those already in use. Partnering, we can take advantage of available expertise, and by publicizing the work that's being done in the field we can interest nonexperts, such as students, who can assist in collecting data. Furthermore, we can encourage the support of the public by sharing and interpreting—in articles, brochures, and presentations—understanding of our natural resources resulting from the monitoring effort." ■

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NPS staff since December 2002

Northeast Temperate Monitoring Network, Marsh-Billings-Rockefeller National Historical Park; Woodstock, Vermont

PROFESSIONAL PROFILES

resource monitoring

Diane Sanzone, Ph.D.

Arctic Network Inventory and Monitoring Coordinator



Diane Sanzone's job requires her to do species inventories and develop a long-term monitoring program in the five parks in the Arctic Network. Her job presents a huge challenge: these parks occupy more than 21 million acres (8.5 million ha), or roughly 25% of National Park System land, and though they are pristine and magnificent, they are frigid and dark much of the year, requiring her to do most of her

fieldwork during the short summer season. Even then, getting into the field is not easy, she explains. "These parks are probably the most remote parks in the United States. It takes days just to get to some of our field sites. There are no roads, so we use float planes and helicopters and river travel to get to field sites. Getting in or out of a site can take days because of poor weather conditions."

These difficulties have not dampened her enthusiasm, even though she was pregnant while flying and sailing over this rough terrain during her first summer in her new job. She finds these Arctic parks "some of the most beautiful places on earth! Most of the time when we are flying over the parks my mouth is agape and all I can think about is how lucky I am to be experiencing such rugged and wild wilderness."

Diane grew up in New Jersey and went to graduate school at the University of Georgia. She spent a year in Iceland as a Fulbright Scholar studying nitrogen dynamics in Arctic streams. Then, before joining the National Park Service, she was a postdoctoral scientist at the Marine Biological Laboratory in Woods Hole, Massachusetts, where she studied ecosystems of the rivers in the Arctic National Wildlife Refuge in Alaska. She is joined in Alaska by her husband, who works at the Toolik National Science Foundation Long-Term Ecological Research site. Their baby, Madeleine Isabella, is due in January 2004. ■

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NPS staff since June 2003

Gates of the Arctic National Park and Preserve; Fairbanks, Alaska

Professional natural resource management staff numbers up over last decade

By Abigail Miller

THE ROSTER of professional natural resource management staff in the National Park Service is growing steadily, according to an analysis of personnel data conducted in 2003. For this analysis, professional resource managers are those whose positions are officially classified by the Office of Personnel Management (OPM) as professional (not technician-level) biologists, physical scientists, mining engineers, and geographers. Of the 272 national parks deemed to have significant natural resources, approximately 70% (192) had at least one professional-level resource manager on staff in 2003, compared to about 50% (134) 10 years ago. In 2003, 77% of those staff were stationed in parks or field-based support units (such as inventory and monitoring networks), compared to two-thirds in 1993. About 80% of the positions occupied by these staff are in biological disciplines, with a small increase in the percentage of specialized biologists. Additionally, the percentage of park biologists having advanced degrees upon entering the National Park Service increased slightly between 2000 and 2003.

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Similar analyses in 1993, 1997, and 2000 round out the picture of professional natural resource staffing trends over the last decade. The first year, 1993, reflects the loss of approximately 200 NPS researchers and related support staff to a reorganization. By 1997 the natural resource ranks had rebounded, almost certainly from budget initiatives in fiscal years 1994 and 1995 aimed at increasing natural resource professionals in the parks. The staffing increases in 2003 undoubtedly reflect gains made through the Natural Resource Challenge. However, little Challenge-related growth would have been reflected in the (February) 2000 totals, only five months into the first year of this initiative. Therefore, the staffing increase between 1997 and 2000 may demonstrate a steadily growing perceived need for natural resource professionals, irrespective of funding initiatives.

These conclusions are based on data from a single two-week pay period in 1993, 1997, 2000, and 2003, and represent a snapshot in time. While aggregate comparisons are valid, the specific information about an individual park is not necessarily valid for another time or on average for that park. A few other limitations of the data should be noted:

- Education levels are sometimes inaccurately or incompletely recorded and are rarely updated to note ongoing or additional education; the information generally reflects only entry-level education.

- The data do not reflect technician-level staff or those in ranger or related positions that may perform natural resource management duties. Undoubtedly, more staff perform natural resource-related duties, although not as professional-level staff, than are indicated by the data. In many instances, nonprofessional resource management positions have been reclassified over the past decade to professional-level positions. These reclassified positions are reflected in this analysis.
- Before 2003, positions were categorized administratively by location: park, regional office, or Washington Office. The park category was expanded in 2003 to include field-based park support units. This change reflects the addition of staff to Exotic Plant Management Teams and Inventory and Monitoring networks, which may be associated with various organizational units, but are all field-based.

Despite shortcomings in the data, a number of additional conclusions are evident. The number of professional resource managers in the National Park Service has more than doubled, from 487 in 1993 to 1,049 in 2003. Certainly this represents growth in numbers of professional staff dedicated solely to natural resource management. But it also likely reflects the replacement of technicians and rangers by resource professionals through a process of job reclassification or through replacement when vacancies occurred. Technicians and rangers often carried out natural resource management duties, although OPM does not consider these positions to be professional resource management positions.

While there has been some growth in positions that are classified as specialists, 62% of all biologists are classified as general biologists. The percentage of professionals in physical science positions has held steady over the decade at about 20%. Biologists made up 88% and 86% of park resource professionals in 2000 and 2003, respectively, and the percentage of these biologists with advanced degrees has grown from 49% to 53% over the same period. This likely reflects the influence of the Natural Resource Challenge, which funded new Inventory and Monitoring personnel and air and aquatic resource professionals placed in the field (see previous articles, this chapter). Many of these staff hold advanced degrees.

All in all, these trends demonstrate significant progress in advancing natural resource management to the professional levels necessary for effective park preservation. ■

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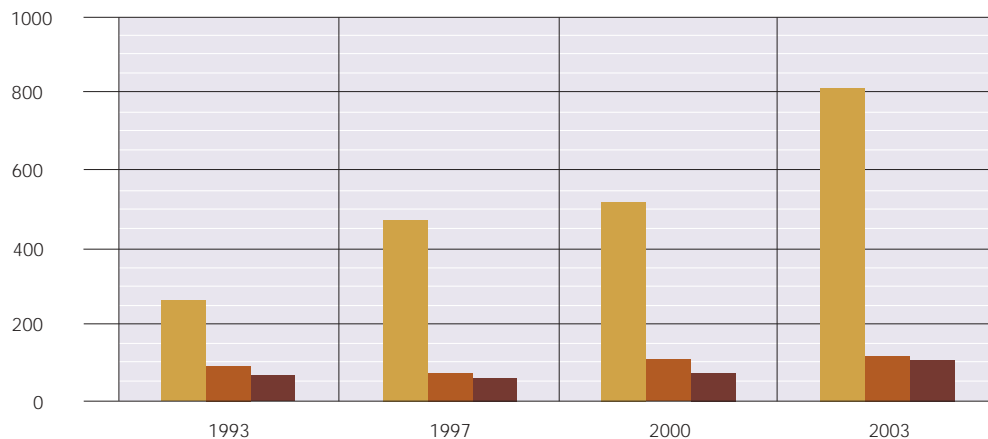
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staffing trends

NUMBERS OF NATURAL RESOURCE PROFESSIONALS BY LOCATION

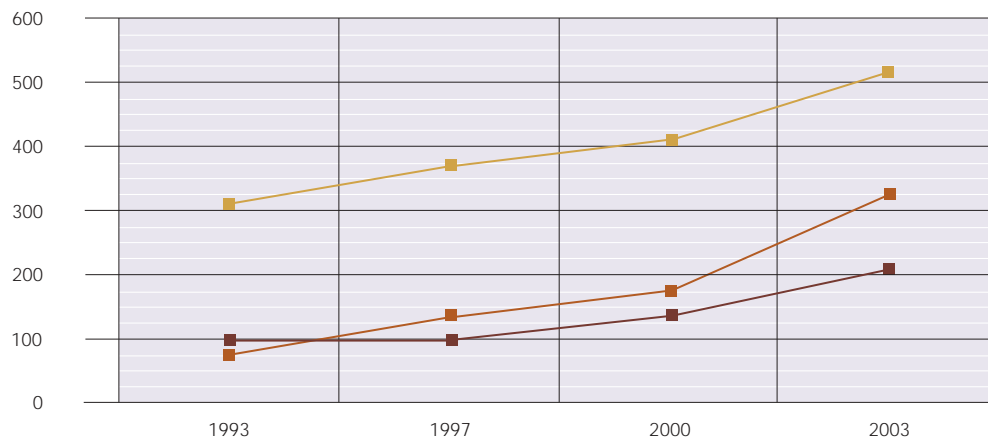
Excludes Denver Service Center, Harpers Ferry Center, and fire personnel

- Parks and I&M Networks
- Regional and Support Offices
- Washington Office



TYPES OF NATURAL RESOURCE PROFESSIONALS

- General Biologists
- Specialized Biologists
- Physical Scientists



NPSFACT

Approximately 70% or 192 of the 272 national parks deemed to have significant natural resources (I&M parks) had at least one professional-level resource manager on staff in 2003, compared to about 50% or 134 a decade ago.